For The Tribune.

THE POOR MAN'S BOOK.

BY GEO. W. BUNGAY.

The winds have blown the smoke away—
Cold is the forge and hushed the mill;
The "toil-worn cotter" rests to-day—
Traffic is mute and Labor still.

The unharnessed horse feeds on the green,
The laboring ox rests in the shade;
A holy calm pervades the scene,
And beauty smiles from hill and glade.

The modest flowers that light the clod,
Like drops of sunshine from the sky,
Bow their sweet heads and worship God,
And send their fragrant praise on high.

Beneath his fig-tree and his vine,
Beside the lowly cottage door,
The poor man reads the precious line
Of promise to the humble poor.

The Bible is the poor man's law,
A blessed boon to mortals given;
A ladder such as Jacob saw,
With angels coming down from Heaven.

Bogueis, September, 1851.

LETTERS UPON HUNGARY.....No. XIII.

BY MR. BRACE.

DEBRECZIN, May, 1851.

To the Editors of The N. Y. Tribune:

As I entered Debreczin, after my journey over the Dusztas, I was struck at once with the singular appearance of the town. It seemed as if it might be a city of 150,000 inhabitants, for, as far as the eye could reach, on every side, one could see long rows of buildings, but though neat and well built, scarcely any house was more than one story high, and the streets were as broad as in our New-England villages. There was no paving in the streets, and very often none on the walks. No grass, too, anywhere, or trees, except once or twice, in the roads, so that as you looked down the roads, between the houses, you saw nothing but a bare space of mud, reaching from the fences on one side to those on the other. It was comparatively dry when I arrived, and there were only one or two dangerous-looking pools in the carriage-ways; but in wet weather, I could well believe what they told me, that the streets are nearly impassable with a foot and a half to two feet of mud in them! and, as they asseverate, with such immense pools of water, that wild ducks have been seen swimming leisurely about in the streets of Debreczin city.

Despite that great extent of the town, owing to the mode of building each house very long and low, the population only numbers some 55,000.

As I entered, the walks were swarming with sturdy looking peasants, who had come into the market, and with the women, who had been drawing water, at the fountain out of the city. By a curious chance, these all carry the water in urns, made after the exact form of the old Grecian and Etruscan vases—so like that one could almost think he discerned the different ages in the black pottery with red figures, or the red with the black. They carry these on their heads, as the classic maidens did, or sling two by the handles, over their shoulders, altogether in a remarkably picturesque style.

Whatever may be said of the outside of Debreczin, no stranger could see the inside without acknowledging that such genial, hospitable homes are scarcely to be found in any land. There is a heartiness, an overflowing hospitality about the people, such as quite puts to shame the colder politeness of the more polished races.

The want of taste, which is much too visible throughout the city, is not at all so apparent within the houses, which are arranged and furnished often very prettily. Indeed, there seems a style of architecture in many of them quite peculiar to the place, what I might call the *crypt style*—the parlors, or dining-halls, are built with arches running up to the center of the room, and supported on a low column, and sometimes on several low columns, so that with the walls prettily painted with fanciful figures, like the old classic walls, they make a very picturesque appearance, and are besides very cool for their hot Summers. It was odd enough, finding unconscious classic imitations in the great swine market of Hungary.

The appearance of the Debreczin population has something in it very comfortable and substantial. In all the fifty-five thousand, there is not a noble, but there are no beggars. The wretched-looking Wallachs, or Raizen, which haunt the streets of Pesth, are seldom seen here. The great bulk of the population are *Bauer*, but independent, vigorous fellows, who seem as if they never had been, and never could be, under any feudal domination. Indeed, that is the fact, as far as their past history is concerned. Debreczin is a "free city," and, as such, was never liable to any feudal exactions, and was represented as a corporation, in the Parliament (*Reichstag*.) Some of the richest Bauer of the kingdom lived there. My friends showed me several of the finest houses of the city, which had been built and owned by "Peasants"—that is, by men deprived of all general political rights, and belonging to the same class which, in the other parts of the country, were subject to feudal labor. The prosperity and intelligence of the whole population seem to have been always very remarkable. They all agree there is no poverty there, and the Protestant Bishop, (*superintendent*,) who knows the people well, said to me, that, to his knowledge, there were not a hundred people in the city who could not read, and that in his Diocese, reaching over all the country in that neighborhood, and containing 800,000 souls, there were 70,000 children in the schools. Many of them seemed to think that the peculiar prosperity of Debreczin arose from a curious old agrarian, or rather Jewish-like provision of the law, that *no citizen should own, in land, more than 120 joch, or about 168 acres*. His property in money or houses was not limited, but this was to be the extent of his landed property. A singular provision to have arisen here, where the ideas either of the Mosaic landed law, or of French Socialism, were never in any way thought of. I was curious to know about the details. It seemed to me, a great variety of difficulties would arise. Each contract must be inspected, to know that no more than the legal amount of land was purchased. There must be clerks and books, and a great administration, to keep an exact account of each man's estate. There could be no rapid buying and selling, and business must be exceedingly hampered by such regulations. Then, what was to be done with the estates which, by inheritance, had reached an illegal size?

They answered—and I think very sensibly, as far as their circumstances are concerned—that business was impeded, it was true—and that no great fortunes were made there—but, they thought that more than counterbalanced by the general comfort and contentment. People were never very rich there, but they were never very poor, they said. There were very small landholders there, who could not probably, in the worst of times, lose all their property. There was very little temptation in buying and selling land for business purposes there, and people lived more comfortably on the whole. They had seen enough of the evils of overgrown estates, in other parts of Hungary. As for the administration, there was no difficulty, they said. No purchase was legal which was not made known to the town clerk; he had the amounts of landed property belonging to each citizen, registered opposite to his name, in a book for the purpose, and the whole was settled in a moment. If more than his legal share was inherited by any person, the overplus accrued to the city; though, where, exactly, the dividing line would fall in such cases, whether across the good or across the bad, they did not state. However, so much for the *fact* of Hungarian "*agrarianism*."

As another somewhat "Socialistic" tendency, I may mention—what I had previously noticed in other parts of Hungary—the plan of feeding all their cattle, and raising their vines, *in common*. The cattle and swine, numbering many thousands, are driven out in the Spring—each marked with the owner's mark—to the prairies, belonging to the town, and are there fed and taken care of by the cattle-drivers, at the expense of the owners, till the Autumn, when they are brought in and reclaimed. Each person, too, who pastures his cattle in this way, pays a certain rent to the city. In the same manner, the vines are grown on one common field, attended by a few vine-dressers, who are employed by the whole body of those owning parts in the field. They seem to have fallen into all this, not from any theory, but because it happened to be a convenient and much cheaper mode of managing their affairs. Of course it all saves a great deal of labor and expense; though how they avoid the quarrels and disagreements which usually attend such partnerships, I did not satisfactorily learn.

Debreczin is not at all an aristocratic place, or remarkable for its polished society in Hungary. Still the manners of every class of people are the most singularly courteous and polite. As I walked through the streets with the friend whom I was visiting, it really seemed as if he kept his hat all the time in the air. Not the easy nod of the English, nor our faint gesture towards the hat, even to the most common acquaintance, but a real waving of the hat in the air every time he met any one he knew. Even he was forced to confess, it would be a great saving in hats if they were a little less punctilious. Whenever, too, we had called on an acquaintance, and were taking our leave, the ceremonies of parting were really burdensome. First, we all shook hands in the parlor, and wished each other "God's protection," as if we were separating for a long journey, and the old servants would come forward often to kiss our hands; then the gentleman puts his arm under mine—as the stranger's—as if for a half support, and accompanies us to the door, where the same farewell, with the shaking of hands, is repeated; then we all go on together again to the outside gate of the yard, where we wave our hats, grasp hands, and finally bid adieu.

This, it must be remembered, does not seem at all affected, or "put on," for the sake of gentility. It is their mode of expressing kind and hospitable feelings.

At dinner, too, after we leave the table for the coffee, we all bow to one another, and wish a solemn salutation; and in many families the daughters come forward and kiss the farther's hand. Their salutations, too, have something dignified and oriental in them. "*God be with you!—God protect you!—God watch over you!*"—instead of the servile "*Unterthanigster diener*" (*most humble servant!*) or "*Servus!*" so much in vogue in Vienna—though these are beginning to creep in in the most polished Hungarian society. Wherever I went, having a most unfortunate black European hat, never worn here, I was at once known as a stranger; but it was pleasant to find even the common peasants saluting me, politely, as if in welcome.

Through all the Hungarian society there is, even in this time of national depression, a kind of *exaggeration*, I may call it, of violent expression of feeling, to which it takes some time for a stranger to accustom himself. There is nothing at all like it in European or American society. A natural, passionate eloquence, and a kind of *outré* mode of expressing their feelings, which would be altogether out of place and affected with us, but which does not seem *at all* singular after a little while among them. I have been in a most sensible and cultivated family, where all the ladies were *dressed in black* for their country, and where they wore small iron bracelets—almost as heavy as handcuffs—on their wrists, in memory of the solitary prisoners of Arad and Temeswar.

I have seen too, often, in Hungary, bits of the BROOMS with which Haynau was beaten, brought over by some one, put up in handsome gold settings, and worn as pins by the ladies! And there is scarcely a family in the country without the little bracelets worked by the Hungarian prisoners, and marked with the first letters of the names of the Generals who were executed by the Austrians, in this way—"P. V. D. T. N. A. K. L. S."—which can also be so read: "*Pannonia Vergisst Deinen Tod Nie; Als Klager Leben Sie!*" (Hungary forgets thy death never! As accusers they shall live!) It is a penal offence, by the way, wearing these now.

As I said before, all this would seem an exaggeration elsewhere, but here, where you know the people have done and suffered so much in the cause which they now are commemorating, you quite forget the singularity. I, for my part, too, connect it with those fervent, eloquent tones with which almost every Hungarian speaks of his country's wrongs, and which thrill yet in memory on my ear. It would be difficult, almost, for any one of the cool Anglo-Saxon blood to credit the instances I met with constantly here of this *intensity* of feeling, on politi- [illegible] erous surrender at Vilagos, many of the private soldiers shot themselves through the brain in the bitterness of their despair. The number of cases of insanity after the Austrian victory, beginning with that of one of their most lamentable and distinguished leaders, would be incredible. I never shall forget a visit I paid to a hospitable, generous family, yet bowed and saddened by an event of this character, which commenced the struggle against Austria.

No Hungarian will forget, some twenty years since, a young man with a wonderful power of eloquence, a face and form in the highest type of manly beauty, who was laboring with inexhaustible enthusiasm in the party of liberty with Kossuth. Every thing promised him a long future, glorious for Hungary and himself. It happened, however, that the Austrians heard of these efforts of his party, and at once resolved to crush them.

Their meetings were broken up, and the various members were imprisoned. This young man escaped, but a very intimate friend of his, who had labored in the same cause with him for many years, was thrown into a loathsome dungeon. Though unharmed himself, sympathy with his friend, agony for his country, worked on his mind, so that he became a lunatic, and is now hopelessly insane in the Asylum at Vienna. To add to the more than dramatic incidents of this strange story, his friend, a man of almost equally brilliant promise, came forth from a three years' painful imprisonment *an idiot*, and may be now seen sometimes moping and chattering about the streets of Groswardein.

Do not such incidents—not uncommon in Hungary—seem to speak of a far more passionate, excitable nature, than any thing which we ever behold among our Northern races. And it must be remembered, if we would understand the Hungarians, that this excitement and enthusiasm for their country have been no transient, sudden gush, like the Italian. It has flown on now for many centuries—even deeper and stronger during their disasters. The almost dramatic coolness and bravery with which the Hungarians died on the scaffold and the gallows, after this late Revolution, would hardly be credible. There were several instances of insanity previous to the execution, but not a solitary one of fear during them. Many went forth before the file of soldiers, with a cigar in their mouth. One of the bravest of the thirteen Generals shot at Arad, was reserved to the last, while the others were executed. "*I was always first in the attack*," said he; "*why am I last here?*"

I have no doubt, from all which I saw this year, that the national exultation and enthusiasm before the Revolution, as travelers say, were altogether unbearable. Probably never in the history of the world, unless during the first years of the great French Revolution, was there seen such an universal national excitement.

I must relate here a little incident, gathered from my notes, as connected with this trait of the Hungarians, though it can hardly impress any one else as it did me, who knew well the parties.

There was a large and refined dinner-company assembled, of people who had traveled much, and were not at all narrowed in their ideas to the Hungarian measure. We had been chatting pleasantly at the meal, when suddenly the host arose—a courteous and dignified old man, with head whitened, and forehead furrowed by the sufferings of himself and his family, in the Hungarian cause—and proposed the health of "their American guest," and accompanied it with a speech; I cannot remember it exactly, but he spoke in deep, feeling tones of the sufferings and degradation of their country—of how much they had hoped for her, and how much was lost—of the gloomy future for them and their children, for years to come. Then he alluded to the exiles: "Sir," said he, "when our countrymen were beggared, and homeless, you Americans sheltered them—you have opened your houses to them—you have given them money and land—and most of all, you have remembered that they were sufferers in the same cause with you—you have given them *your sympathy*. May God bless you and your country for this! I am but an humble Hungarian, but tell your countrymen from me, that if there is any man in this land who will not open his hearth and home, and all he has, to the American stranger, *he is not worthy to be called a Hungarian!*"

As he alluded to our generosity to the poor exiles, almost every eye filled with tears, and though they said nothing when he finished, it was evident they felt it all, as we could scarcely even imagine. However, the remainder of my observations in Debreczin I must postpone to another letter.

C. L. B.

SCIENCE AND THE USEFUL ARTS.

Prepared for the N. Y. Tribune.

Ornithology.—Mr. J. GOULD lately read before the Geological Society of London a minute description of six new species of humming birds, brought from Veragua, in New-Granada, by Mr. Warzewicz, a distinguished traveler and botanist. Some specimens, thought to have been spoiled on the voyage, were still beautiful, colored a glittering red, blue and green color, mixed with snow white, of a brilliancy enhanced by darker colors. They were discovered at 6,000 feet up the mountains where they inhabit. Mr. W. is the first naturalist who has penetrated into those parts, where he encountered both hardship and danger.

Meteorological Observations, made by Mr. Thompson at Chiswick, near London, and by Mr. Weall, at Boston, during the month of August, show that the mean hight of the barometer was at Chiswick 30 inches; at Boston, 29.51 inches. The mean temperature was at C. 62° Far.; at B. 62.4° Far. The quantity of rain during the month was at C. 2.03 inches; at B. 1.64 inches. During 24 days out of the 31 of that month, the directions of the wind at the two places were within 45° of each other. During 4 of the other days, there was a calm, preventing comparison, and during the remaining 3 days the angle was never above 90°.

California Gold.—This gold has a whitish color, due to a large proportion of silver, which gives it quite a new appearance. Professor Tenant, of King's College, London, having experimented with the crucible, on a large piece of gold-bearing quartz, from California, weighing 3 lbs. 11 oz., has found in it 1 lb. 2 oz. of quartz, 1½ lb. of pure gold, and 4½ oz. of silver, making the silver 20 per cent. on the amount of gold. Such results happen in large pieces, while the gold found in small pieces is the purest.

Hatching Turtles' Eggs.—Mr. Vallée, keeper of reptiles at the Garden of Plants, observed six eggs on the sand in the space reserved for turtles. Having placed three of them in the hatching apparatus, he found there a turtle two months after, the size of a walnut. This is the first time that a turtle has been hatched by artificial means.

New Etching Liquor for Copper-plate Engraving.—Etching on copper with nitric acid has the great inconvenience of producing a disengagement of gases which remain in small globules between the copper and the liquid, and prevent the uniform action of the latter. Engravers, to obviate this defect, either shake the plate, or with their breath or otherwise force the acid to move and carry off these globules. Mr. Kobell, a Prussian, has discovered that the chloride of iron combines with copper without the production of gases, and that it may be used by engravers without difficulty. To prepare the salt, iron turnings are dissolved in hydrochloric acid, and a hot aqueous solution of hydrochlorate of potash is added, until the color, at first a deep brown, acquires the yellowish hue of beer. This, diluted with weak hydro-chlorate acid, is the liquor ready for use. It acts on copper by transforming it into chloruret of copper, which the hydro-chlorate of potash converts into chloride of copper. The liquor may be kept in good condition by adding to it, from time to time, a hot solution of hydro-chlorate of potash.

Railroads in Spain.—The Spanish Cortes have decided that the narrow gauge, 4 feet 8½ inches, shall be used for all the railroads to be built in that country.

Improvement in Railroads.—Under this head we lately published a description of a new invention, which has been copied and criticised in *The Scientific American*. This criticism shows a complete misunderstanding of the principle of the inven- [illegible] we will repeat it briefly. Two parallel lines of rails three feet apart, and elevated from two to six feet above the ground, are maintained by appropriate contrivances against the sides of wooden posts, in such a manner as to leave the space free above, under and between them. Cars and locomotive of a light frame being placed upon the rails, *each car* is then firmly united by braces and stays with beams running cross-way under it, one under each extremity. These beams are lower than the rails, and long enough to have their extremities under them; to these extremities are attached artificial magnets—or, if it will make it any clearer, natural loadstones—which, by their tendency toward the rails above, will counterbalance as large a part of the weight of the cars as the constructor thinks desirable, the remainder of the weight being left to act on the wheels. In this way a locomotive of small power, and consequently light, will prove sufficient to draw the train with great velocity.

A Big Steamship.—The largest steamer ever built is now making in Scotland, for the Peninsular and Oriental Steam Navigation Co. She will be in length 325 feet, breadth of beam 43 feet, measurement 3,000 tuns, the collective power of her four engines 1,400 horses; she is guarantied to go 14 knots an hour.

Semmering Locomotive.—The prize offered by the Austrian Government for the locomotive best adapted to ascend steep declivities has been gained by Mr. Maffey, a manufacturer of Munich.

The Submarine Telegraph.—The cable has now been submerged five weeks between Dover and Calais, but owing to the fact that the cable is half a mile too short to reach the French shore, communications have not been carried between England and the Continent. The cost of this cable is £15,000, and it is confidently hoped that it will not be cut on the rocks by the agitation of the sea, as the first was. A patent to obviate that difficulty has been secured in England by Mr. Dick, of Ayr. His process is to inclose the wire, previously incased in gutta percha, in a cast iron envelope. This envelope is made of perforated balls and perforated cylinders, threaded on the cable in succession, first a ball, next a cylinder, another ball, another cylinder, and so on. Of course the ends of these cylinders are so formed as to fit the balls exactly, and the structure is a succession of knee-joints, or rather a shark's back-bone. This arrangement claims to produce an effective protection of the rope, with flexibility and cheapness. Speaking of a telegraph between Europe and the America, *The Morning Post* says, that the only difficulty of the undertaking is to provide the requisite funds. Making an estimate for a wire rope one inch in diameter, covered as usual, the cost would be £50 per mile, and the nearest points of Europe and America being 2,000 miles apart, the whole expense would not exceed $2,500,000. The importance of such a work is not to be estimated by thousands of millions.

Electro-Magnetic Machines.—A third edition, much enlarged, of the *Familiar Letters on Electricity*, by Prof. LIEBIG, has just been published in London, from which we extract the following:

"At the present moment, electro-magnetism, as a motive power, is engaging great attention and study; wonders are expected from its application to this purpose. According to the sanguine expectations of many persons, it will shortly be employed to put into motion every kind of machinery; and, among other things, it will be applied to impel the locomotive engines on railroads, and this at so small a cost, that expense will no longer be matter of consideration. England is to lose her superiority as a manufacturing country, inasmuch as her vast store of coals will no longer avail her as an economical source of motive power. 'We,' say the German cultivators of this science, 'have cheap zinc, and how small a quantity of this metal is required to turn a lathe, and consequently to give motion to any kind of machinery!'

"Such expectations may be very attractive; indeed they must be so, otherwise no one would occupy himself with them; and yet they are altogether fallacious; they are illusions, depending on the fact that those who entertain them have not made the necessary comparisons and calculations.

"With a simple flame of spirits of wine, under a proper vessel containing boiling water, a small carriage, of 200 to 300 pounds weight, can be put into motion; or a weight of 80 to 100 pounds may be raised to a hight of 20 feet. The same effects may be produced by dissolving zinc in dilute sulphuric acid, in a certain apparatus. This is certainly an astonishing and highly interesting discovery; but the question to be determined is, which of the two processes is the least expensive?

"In order to answer this question, and to judge correctly of the hopes entertained from this discovery, let me remind you of what chemists denominate 'equivalents.' These are certain unalterable values of effect which are proportionate to each other, and may therefore be expressed in numbers. Thus, if we require 8 pounds of oxygen to produce a certain effect, and we wish to employ chlorine for the same effect, we must employ neither more nor less than 35½ pounds weight. In the same manner, 6 pounds weight of carbon, (in the form of coal,) are equivalent to 32 pounds weight of zinc. The numbers representing chemical equivalents express, in the most general sense, the relative values or amounts of effect, and are applicable to every kind of effect which bodies can produce.

"If zinc be combined in a certain manner with another metal, and submitted to the action of dilute sulphuric acid, it is dissolved in the form of an oxide; it is in fact burned (oxidized) at the expense of the oxygen contained in the conducting liquid. A consequence of this action is the production of an electric current, which, if conducted through a wire, renders it magnetic. In thus effecting the solution of a pound weight, for example, of zinc, we obtain a definite amount of force, adequate to raise a given weight one inch, and to keep it suspended; and the amount of weight it will be capable of suspending, will be the greater the more rapidly the zinc is dissolved.

"By alternately interrupting and renewing the contact of the zinc with the acid, and by very simple mechanical arrangements, we can give to the iron an upward and downward or a horizontal motion; thus producing the conditions essential to the motion of any machinery.

"Out of nothing no kind of force can arise. We know that, in this case, the moving force is produced by the oxidation of the zinc; and, setting aside the name given to the force in this case, we know that its effect can be produced in another manner. If we were to burn the zinc under the boiler of a steam engine, consequently in the oxygen of the air instead of in the galvanic pile, we should produce steam, and by it a certain amount of force. If we should assume, (which, however, is not proved,) that the quantity of force is unequal in these cases,—that, for instance, we had obtained double or triple the amount in the galvanic pile, or that in this mode of generating force less loss is sustained,—we must still recollect, that zinc can be represented by an equivalent weight of carbon, (as coal.) According to the experiments of Despretz, six pounds weight of zinc, in combining with oxygen, develope no more heat than one pound of coal; consequently, under equal conditions, we can produce six times the amount of force with a pound of coal as with a pound of zinc. It is therefore obvious, that it would be more advantageous to employ coal instead of zinc, even if the latter produced four times as much force in a galvanic pile, as an equal weight of coal by its combustion under a boiler. Indeed, it is highly probable, that if we were to burn, under the boiler of a steam engine, the quantity of coal required for smelting the zinc, we should produce far more force than the whole of the zinc so obtained, could originate in any form of apparatus whatever."

The preceding reasoning is the same as that of Jacobi, when, after having experimented on a large scale in Russia, he gave up the search, convinced it was a vain attempt. The opinions of such men weigh heavily against the prospect of finding a cheap power in electricity, but they are not a mathematical demonstration. And since it is not proved, who can say that the amount of force given by decomposition in a galvanic pile will not be a hundred or a thousand times greater than that given by combustion in a furnace, instead of three or four times, as the great chemist admits it may be? The electric machine of Prof. Page is now daily exhibited at the Society Library in this City. This gentleman has already solved a difficult problem, that of making an electric engine give without the slightest inconvenience as long a stroke as may be desired; moreover, he assumes that the consumption of his engine is, strictly speaking, less than that of a steam engine of the same size. The question then is, whether he has arrived at the limit of perfectibility? This is not probable, and much is to be hoped after what he has already done. It is very desirable that this opportunity of advancing science should not be lost, and that serious and careful experiments should be made by competent men. Such an opportunity has not existed before, and it is a duty not to let it pass unimproved.

V. B.

Page's Electro-Magnetic Engine.

NEWARK, N. J., Tuesday, Nov. 4, 1851.

To the Editors of The N. Y. Tribune:

In answer to your inquiry relative to the Magnetic Engine of DR. PAGE, I beg to enclose my report, made at the request of parties in New-York, who employed me to visit Washington and examine the engine.

The question of expense, although generally settled, will undergo an exact test immediately, the results of which will be furnished you.

I remain, Sirs, yours respectfully,
JAMES J. MAPES.

NEWARK, N. J., Monday, Aug. 18, 1851.

F—— H. U——, Esq.—*Dear Sir:* On behalf of J. T. D——, Esq. and others, as per your request, I visited Washington and have examined the Electro-Magnetic Engine invented by Dr. Page. In fairness to Dr. Page and in illustration of the differences existing between his machine and all others bearing the same name, it may be proper to state that my convictions for many years had been that natural laws existed which would render the use of Electro-Magnetism as a source of power impracticable. Mr. Davenport and others had constructed engines, all of which I had examined, and in every case, had found the real motive force so inconsiderable as to render them valueless, while a multiplication of such machines would neutralize each other if in close proximity.

Each of these machines was supplied with a fly-wheel or other retaining power, and after running for a space of five minutes, I was invited to try my strength by stopping them, which, in some cases, I was unable to do. Thus, a machine which could furnish a motive force of one pound at each revolution, revolving once per second, would require at the end of five minutes a power of 300 pounds to arrest its motion. And, therefore, its real mechanical value by a casual observer would be over estimated. The real value of such force, however, might be less than the continued action of the one-thousandth part of one horse power. As these contrivances previous to that invented by Dr. Page depended upon the attractive force of Electro Magnets, I therefore constructed a single Electro Magnet which would sustain a weight of 4,500 pounds, but the weight required to be brought within 1-85th of an inch of the face of the Magnet before it would be attracted to its face. When the time necessary to cause this Magnet *to let go* was taken into account, it proved to exert a continued force of less than the one-thousandth of a horse power and hence to be valueless. The introduction of a large number of these Magnets in the same room, or attached to the same machine, had long been decided as impracticable, as their influences would neutralize each other, and hence, as before remarked, I expected to find the engine proposed by Dr. Page as one of the many chimeras of the day.

Dr. Page exhibited his machine with the utmost frankness, and during the whole investigation he evidently controled the sanguine feelings of the inventor to give full value to each objection offered, nor did he in any instance object to the fairness of tests proposed.

The first Machine shown was a pile of Helices, having an inner opening of about 4½ inches diameter, and supported on a frame. Immediately below this inner opening was a rod of iron, weighing 350 pounds. The wire from the battery was connected with the lower helix, and the rod immediately rose from the floor and entered the opening in helix No. 1, leaving a concentric space between itself and the inner surface of the helix. The attachment was then made to helix No. 2, and the rod immediately rose, and without dropping at all at the change of connection. In this way, the connection was changed to each helix in turn, until the 350lb. rod protruded above the helices. Dr. Page then stood on the top of the rod, which not only sustained his weight, in addition to its own, but he pushed with his hands against the ceiling, increasing the downward pressure on the rod, which was only acted upon as a powerful spring would have been affected, but still maintaining its perpendicular position concentric to the inner surface of the helices. I held an iron rod in my hand, and touched its end to the upper end of the sustained rod. I could not detach it by pulling or jerking, and could only alter its position so as to cause the annular space to become eccentric instead of concentric. The instant the battery was disconnected, the suspended rod fell to the floor with its full force.

This experiment clearly illustrated that if the wire from the Battery should be passed rapidly up and down the *outside* of the helices so as to alternate the connection with each helice that the inner rod, weighing 350 pounds, would perform similar travel, and that a shackle bar attached from this oscillating rod, and to a crank, would convert this reciprocating motion into a continuous one, and with a power equal to the weight of Dr. Page, (who had stood on the rod,) multiplied by the velocity of travel. This machine was called a "Jumper," and by this name we will refer to it. We were next shown a larger "Jumper," the helices of which weighed eight hundred pounds, and the rod five hundred and twenty-six pounds. On the rod being confined and the Battery attached, the helices rose on the rod, and when these were supported and the rod set free, it performed all the phenomena observable in the smaller "Jumper," but fairly and fully illustrating that the amount of power increased in at least a direct proportion with the increase of size, and *clearly doing away with all the objections I have urged against the previously known contrivances.*

It was now evident that all the conditions for power were attained, and that nothing but the application of well-known mechanical laws would be requisite to transform either of these "Jumpers" into a *working Engine*, and this desideratum *has been fully accomplished by Dr. Page*.

We next visited the Engine House, and here found a line of helices placed horizontally on a frame, and in their annular opening a rod of iron, as in the Jumpers, with the necessary guide arrangements. To the end of this rod was attached a shackle-bar, communicating with a crank on a fly-wheel shaft, the crank being 12 inches long, and the fly-wheel 4½ feet in diameter. On the outside of the helices (or cylinder) was placed a line of pieces of metal so arranged as to render the attachment with the Battery and its necessary alternations performable by the Engine itself. And from what I have said of the Jumpers it can easily be understood that the connection alternating from end to end of the cylinder, would cause a corresponding travel of the piston or rod, and thus give available motion to the fly-wheel shaft, &c. Before starting the Engine, I tried an arm of the fly-wheel at one-third greater distance from the center than the length of the crank to an upright beam of 12 inches diameter, which formed part of the frame of the Engine. The cord used was the better kind of bed-cord, of great strength, and nearly ½ of an inch in diameter. This was passed twice around the fly-wheel arm and post before being tied, and with pieces of sole leather intervening to prevent the cord being cut by the corners of the upright post. Such a fixture, I am confident, would have held a five-horse power steam-engine from starting, with full pressure of steam on the piston, and no previous motion. Not so, however, with this Engine, for the breaking the string and the attachment of the Battery occurred at the same instant of time, leaving an impression in the beam to the depth of the cord, despite the protection of the sole-leather. I have brought this cord home with me, and shall test its precise strength, reporting you the result.

The Engine continued to work in the most satisfactory manner, and Dr. Page attached a Circular Saw which was used in wood to a depth of six inches, and at a speed such as could be anticipated from the power which we afterward found the Engine to possess.

The great simplicity of the parts left nothing to be ascertained but the exact amount of power obtained, and the expense of its production, and these formed the basis of our further investigation.

POWER.

The surface of the fly-wheel being flat, a lever was arranged so as to bring a metallic surface to bear on its periphery, and the surfaces being lubricated, we weighted the lever to the extent the Engine could bear and continue its motion. Considering the friction equal to 8 per cent. of the active weight used, we found the amount of power to equal 6 84-100 horses, being rather greater than the estimate made by Professor Walter R. Johnson, whose formula I consider entirely reliable. The consumption of acids and zinc for the use of the Battery was more difficult to estimate, as the Battery had been long in use, and the acids were not fresh, but from the statistics furnished by Dr. Page and assistants, I could not doubt that his estimate of 20 cents per horse-power per day of 24 hours, is to be relied on, and that with properly amalgamated plates, the expense will be much less.

After combating against the friends of Electro-Magnetism for many years, I do not willingly give up my preconceived notions on this subject, and it is only after due investigation that I am constrained to say that *Dr. Page has fully succeeded in demonstrating the practicability of his invention*. The points still to be tested are few, and only such as embrace a knowledge of mechanics, or such as would be required by a change of position or purpose of an ordinary steam engine, while the late improvements by Grove and others, give promise of greater economy in the use of the Battery, &c. The liberation of gasses at the Battery has been urged as an objection; but the same difficulties were probably feared before the smoke-pipe was properly constructed on board steamboats, for getting rid of the products of combustion; and indeed these gasses may be parted with in the same way. Admitting the success of Dr. Page's Engine to be attained, its advantages are numerous and invaluable.

The cost will be less than a steam-engine of the same power.

The weight will be but one quarter, if boilers and contents be taken into account.

The expense of firemen and engineers are dispensed with.

Buildings, and stocks of goods, and vessels, may be more cheaply insured than when steam engines are used, as there could be no risk from explosion or fire.

The expenses of Dr. Page's Engine are only active while the machine is positively in action, whereas an ordinary steam-engine continues its expenses whenever the fire is burning.

Dr. Page's Engine, if used ten times during the day, of six minutes each time, would have but one hour's expenses for the day; whereas, a steam engine, under similar circumstances, would be subject to nearly or quite the full expenses of fuel for twenty-four hours, or equal to the expenses of continuous work.

JAS. J. MAPES, Consulting Engineer.

TENNESSEE.

The Tennessee Legislature—Kossuth.

The Tennessee Legislature on the 8th inst. passed the following resolutions unanimously:

On motion of Mr. Barry, his joint resolutions in regard to the Hungarian patriot, Kossuth, were taken up and unanimously adopted. The following are the resolutions:

1. *Resolved by the General Assembly of the State of Tennessee*, That we were truly gratified to learn that the great, good, and patriotic Hungarian, Kossuth, was about to land in the United States, and to become a citizen of the same.

2. *Resolved*, That from the commencement of the revolution in Hungary to the present time, we have watched with the greatest anxiety and interest the conduct of Kossuth; and that, in everything he has done or said, we have beheld the loftiest genius united with the purest patriotism; and that no man of the 19th century, in Europe, is entitled to share more largely our admiration and friendship.

3. *Resolved*, That any honors and hospitalities shown to this brave, generous, and distinguished man and his true and devoted followers, by the President of the United States, will meet with our hearty approbation.

4. *Resolved*, That any aid or donations made to these brave and good men, by the American Congress, not in violation of the Constitution, shall meet with our most cordial approbation; and that the generosity of the nation should be proportioned to the merits and worth of the donees.

5. *Resolved*, That we would be pleased to see this true man and his friends in Tennessee, and that we are in hopes he will find it convenient to pay us a visit. We know that the freemen of Tennessee would greet him with all the joy and cordiality of his own native Hungarians.

6. *Resolved*, That these resolutions are not passed in a spirit of dictation to the President and Congress, but rather as a free offering and expression of our own admiration and friendship; for we are satisfied that no American wants any stimulus to cause him to honor this man and his comrades but the promptings of his own heart.

7. *Resolved*, That a copy of these resolutions be forwarded by the Governor of Tennessee to Kossuth, and another copy to the President of the United States.

MISSOURI.

GREAT RIOT.—*The St. Louis Republican* contains the following account of a riot which occurred in consequence of the sudden death of a soldier named Gunn, at a house of ill-fame in that city:

The mystery attending the death of James Gunn has given pretext for a deplorable riot. The arrival of the body, on Friday evening, at Jefferson barracks, was the scene of much excitement among the late companions of the deceased, and the accounts of his death were calculated to arouse still more feeling. A little after 1 o'clock on Saturday morning, a body of twenty-five or thirty soldiers from the barracks arrived at the house of Elizabeth Hollis, and demanded admittance. They consisted of privates from the two companies which arrived last week from Fort Laramie. They were armed with pistols, bowie-knives, clubs and sabers. They broke the door open, and proceeded at once to smash the furniture. Glasses, chairs, tables, pictures, beds were shivered to pieces; drawers were taken from the bureaus and their contents turned upon the floor; china ware was demolished. The persons of the inmates, too, were not free from molestation. The women were mercilessly abused, and one man threatened with instant butchery if he gave the alarm. The woman Hollis states that she was robbed by one of the band of money to the amount of $300, which was in a drawer, and that she was made to take from her finger and deliver a ring valued at $400. The noise was at last heard in the street, and the police officers having presented themselves were ordered away. They persisted in endeavoring to enter, when several pistols were pointed at them, and while they retired an ax was thrown with much force toward them. The officers started in quest of additional aid. The rioters, having completed the work of destruction, also left.

The rioters did not stop with the damage effected. They proceeded to Arsenal-park, and having broken into the Park coffee house, helped themselves to liquor, cigars, and whatever else they could seize. After taking with them several decanters of liquor, &c., they left.

In the meantime, a large detachment of police had gathered and gone to the house, which they found deserted. It was determined that, in order to discover the participators in the riot, a party should start immediately to the barracks and should lodge complaint with the commanding officer, previous to their arrival. With this view, Lieuts. Woodworth and Williamson procured a buggy and were on their way in a few minutes.

Fearing they would be stopped by the rioters, the officers armed themselves with guns, powder, shot, and other hunting accouterments. They overtook three detachments of the rioters. The first allowed them to pass on, being assured that they were merely sportsmen; the second attempted to stop them, threatening rough usage if they did not comply. Mr. Woodworth urged his horse forward, when a pistol was fired at him, Mr. Williamson returning the fire. Neither shot took effect, and they succeeded in escaping. When they encountered the third party, they were again ordered to stop, and another pistol fired at them. Williamson again returned the fire, the shot, he believes, taking effect. Several soldiers crowded around the one that had been shot, and the officers proceeded, during the confusion, to the barracks.

So soon as he heard the statement, Maj. Sanderson, commanding officer at the barracks, ordered the beating of the reveille and calling of the check roll. This was between three and four o'clock in the morning. It is believed that several of the rioters got to quarters in time to answer to their names. The absentees were checked, and as they arrived were placed under arrest. Maj. Sanderson, on learning the full particulars of the riot, together with the proceeding at the Arsenal Park House, delivered the offenders over to the city authorities. They were conveyed to the city and lodged in the calaboose.

The names of the parties arrested at the barracks are David Self, Richard Collins, Michael Cain, William Nickens, William Peasurer, Geo. Moore, Thos. King, John Courtey, George Smidt, and two others. Elizabeth Hollis, and others from her house, yesterday identified James Patells, Henry Green, Michael Harney and J. Hepps, members of the same company, who were also arrested.

America at the World's Fair.

At a dinner given by our Minister in London, Oct. 25th, to the American Commissioners, Jurors, Exhibitors, &c., in the Crystal Palace, Gen. WALBRIDGE of our City made the following remarks:

GENTLEMEN: I am confident I but respond to the sentiments of every individual here present, when I express the most fervent admiration at the conception and design of that great British undertaking, of congregating beneath a single roof, and upon her own soil, the loftiest exhibitions of human power and wisdom in all the great and varied departments of civilized life.

Art, Science, Manufactures, Commerce, Agriculture, Painting and Sculpture, have here all been harmoniously blended into one grand effort, and even Nature herself ransacked to indicate the present capacities of the human understanding. Nor will the influence of that great event be limited to the immediate age in which it transpired—descending through all time, and everywhere attracting the eager gaze of posterity, it will be regarded as one of those illustrious deeds in the progress of our race, by which the human intellect has been enlarged, the human affections ennobled, and the age of universal peace and brotherhood approached. Distant countries have been brought into more immediate contact, international intercourse stimulated, and the ingenuity of man quickened to new achievement.

But I confess I do not share in the mortification often thoughtlessly expressed by many of our countrymen, that the United States have not contributed generously to the undertaking. Under all the circumstances, the American exhibitors, considering our remote position, have displayed a public spirit not excelled by any other nation, and in proper keeping with our rising importance in the affairs of mankind. Our people at home are too much occupied in their legitimate business pursuits to withdraw much capital or labor from active employment and its consequent gain.

The official statistics of the proper department at Washington will show that a far greater number of inventions are annually patented in the United States, with our twenty-four millions of citizens, than in all Europe with her redundant population augmented nearly twenty-fold. But this should not elicit surprise; for where political and individual equality is most recognized, the greatest stimulant is presented for individual exertion. Yet the intellect that labors to confer great benefits upon the world, is generally so much engrossed in its high objects as to forget self, and eminent inventors are usually destitute of any other resource than the consciousness of having conferred renown upon their country.

Thousands of useful inventions in the United States have consequently been prevented from reaching the Crystal Palace, because the exhibitor could perceive no actual immediate benefit to himself, and he could not afford to embarrass his capital, or subject himself to the expenditure and loss of time. Nor does this hold equally good, to the same extent, of the European contributor; for it is notorious, that every English contributor, and the greater part of those from the Continent, have had their separate articles in charge of agents, who, while they unfolded the utility of their invention, or the quality of their fabric, persuasively solicited your probable patronage. The Exhibition thus became to them a mart for their merchandise and manufactures, and the surest means of increasing their customers and of enlarging their trade and profits. But of this we should not complain; for only by these means have they been enabled to remunerate themselves for the heavy expenses many of them necessarily incurred, while the greater portion of the articles from the United States were placed on exhibition as evidences of American skill, labor, and utility, without any design, on the part of those by whom they were forwarded, of those collateral and remunerating advantages.

But now that the immense structure, so recently attracting, under its ample transept, the loftiest exhibitions of human power, is about to pass into history, may we not triumphantly inquire if there was anything wanting from our own country calculated to occasion regret? When the record comes to be made up for posterity, it will demonstrate that, for the number of articles on exhibition, the United States have not been surpassed by any other department; and how immeasurably is this reflection enhanced, when we consider the tributes we have received have been awarded for some new discovery in science and manufacture; or the successful application of some well-known principle to a wider and more useful range in the common purposes of life.

I am not insensible to the infinite pleasure it would have afforded us if we could have placed on exhibition here, before the assembled intelligence of the world, some of the great elements of our prosperity and renown. But they seem to be indigenous to the Western Continent, and can only be properly estimated on that soil where they were first fully developed.

A Republican Government of Independent State Sovereignties, sustained by popular equality and the representative principle—a liberal and untrammeled press, with a boundless circulation—the writ of *habeas corpus*—the universal right of trial by jury—no national debt—the general prosperity and comfort of each citizen—free public instruction to all classes—large and frequent assemblages of the people, and their unrestricted interchange of ideas—absolute control of our legislators, through the agency of the ballot-box—and the opportunity thereby presented to the humblest individual of attaining the highest dignities of the Republic.

These are the ligaments of our strength, and constitute our legitimate claim for the proper respect of mankind. There they all are—behold them, affording protection and giving subsistence to all who, under the providence of God, seek a refuge from tyranny and oppression.

Gentlemen, all communities have their own high obligations to discharge. Since the first organization of society, various nations, at different periods, have been enabled to impress the genius of their institutions upon surrounding states, and influenced, for good or for evil, the destinies of our race. Such was the office performed by Egypt, then by Greece, and subsequently by Rome. In the midst of this illustrious presence, drawn from the intellectual wealth of two great empires, the one representing unconditional liberty and universal suffrage, the other qualified freedom and a limited monarchy, it might seem invidious to inquire which of them is at this moment giving the most decided tone and direction to human affairs. Let us, however, fully realize that whatever shall tend to disturb the amicable relations now existing between them, may be justly regarded a calamity to the progress of civilization throughout the world. Let us also hope that the medium of a common language, and a common literature, together with our increasing social and business relations, may render it impossible for any such calamity hereafter to arise. That great event, so recently concluded, has contributed most powerfully to extend to the whole people of both countries more accurate information of the wants, habits, tastes, and sympathies of each other. In the cordial and hearty intercourse, that for months hath been afforded us with eminent citizens from every quarter of the globe, I trust the boundaries of our own thought have been enlarged, and we the better qualified, from what we have seen, to estimate the immortality of our country, still in the early morning of her youth.

Standing where we now do, and anticipating the future by the past, what a glorious inheritance as a people awaits us! I know not what the emotions of other men may be, but the pulsations of my own heart beat more fervently as I contemplate the high destination of my country at the close of that century whose first half has so recently expired,—an intelligent and industrious population of more than one hundred millions, spread over the whole northern portion of the Western Hemisphere—each man secured an interest in the soil, with the means of public instruction provided for his children; while a broad and comprehensive policy shall invite all nations to unite with us, without any legislative restrictions, in the emulous contest that struggles for the commerce of the world.

Gentlemen, let us then return to our respective homes, more thoroughly determined than ever to uphold that Constitution, which binds us together as one people, and whose preservation is paramount to all other earthly obligations.

From Nicaragua—Reported Battle.

Passengers by the steamer Daniel Webster report a battle having been fought between Gen. Muror, the leader of the revolutionary party, and Gen. Chamorro, the Government General. Muror was defeated and taken prisoner, but subsequently liberated on the promise of future peaceable conduct. He afterward violated the promise, and is now in opposition to the Government at the head of 150 men. The Government party, it is said, hold him in seige, at Leon, and there is little doubt but that he will soon be again a prisoner.